

# **ARCHAEOLOGICAL SCOPING STUDY OF TWO PROPOSED WIND FARM SITES (NAMA EAST AND NAMA WEST) NEAR SPRINGBOK NORTHERN CAPE PROVINCE**

Prepared for:

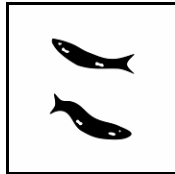
## **DJ Environmental Consultants**

Att: Mr Junaid Moosajee  
Postnet Suite 66  
Private Bag X15  
Somerset West 7130  
E-mail: [Junaid@djec.co.za](mailto:Junaid@djec.co.za)

On behalf of:

## **Mulilo Renewable Energy (Pty) Ltd**

By



Jonathan Kaplan  
**Agency for Cultural Resource Management**  
No 5 Stuart Road  
Rondebosch  
P/F: 021 685 7589  
M: 082 321 0172  
Email: [acrm@wcacces.co.za](mailto:acrm@wcacces.co.za)

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## EXECUTIVE SUMMARY

DJ Environmental Consultants, on behalf of Mulilo Renewable Energy, appointed the Agency for Cultural Resource Management to conduct an Archaeological Scoping Study (as part of an EIA process) for two proposed wind farm facilities (Nama East and Nama West) near Springbok in the Namaqualand region in the Northern Cape Province.

Nama East is situated east of Okiep and the N7 and Nama West lies west of the N7, near Nababeep. Historically, both Okiep and Nababeep are important towns in the history of early copper mining in Namaqualand.

Mulilo Renewable Energy proposes to construct an initial 150 Mega Watt wind energy farm comprising about 75 wind turbines, and includes upgrading of existing access roads and a 10 km long overhead powerline linking to the national transmission grid via Nama substation, near Okiep

The Scoping Study entailed the following:

- A 2-day site visit that included a random, but systematic foot surveys of portions of both the proposed Nama East and Nama West wind farm facilities.

The following archaeological findings were made:

- Only three Stone Age flakes were documented during the 2-day survey.
- The collapsed remains of a (modern) veewagterhuis (shepherds hut) were documented on Nama West.
- Some historic graves occur on the gravel road to Nababeep, but these will not be impacted by the proposed project.

Scoping indications are:

- Significant archaeological remains will not be impacted by the proposed project.
- An Archaeological Impact Assessment of the proposed location sites for the wind turbines and access roads is not required.
- In archaeological terms, no fatal flaws have been identified

The following recommendations are, however, made:

1. An Archaeological Impact Assessment of the proposed overhead transmission line must be done.
2. The location of the proposed construction site camp must be assessed by the archaeologist.
3. Proposed borrow pits for roads must be inspected for archaeological remains.

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## 1. INTRODUCTION

DJ Environmental Consultants, on behalf of Mulilo Renewable Energy, appointed the Agency for Cultural Resource Management to conduct an Archaeological Scoping Study for two proposed wind energy facilities near Springbok in the Namaqualand region in the Northern Cape Province.

Nama East lies east of the N7 between Okiep and Carolousberg, while Nama West lies west of the N7 highway and mostly east of Nababeep. Nama East study area is about 2800 ha in extent, and Nama West is about 6500 ha in extent. The proposed development is situated within the Namakwa District Municipality.

The renewable energy industry is currently experiencing an explosive growth worldwide. In South Africa, while such energy sources are not expected to replace the country's traditional reliance and dependency on coal-generated power, the National Energy Regulator of South Africa (NERSA) has published a favourable feed-in tariff structure for renewable energy that allows for independent clean energy producers to invest in renewable energy resources. Several such wind energy facilities are currently in advanced planning stages country-wide in South Africa. The growing wind farm industry is considered to be of national importance in anticipation of its contribution to electricity supply and reduced reliance of non-renewable energy sources.

It is in this context that the applicant proposes to construct a 150 Mega Watt (MW) wind energy farm near Springbok, comprising up to 75 turbines, internal access roads and a 10 km overhead powerline linking to the existing Nama substation. The electricity that will be generated from the proposed project will be fed directly into the national grid at Nama substation alongside the N7, near Okiep.

The Archaeological Scoping Study forms part of the Environmental Impact Assessment (EIA) process that is being conducted by independent environmental consultants DJ Environmental Consultants.

Dr Johan Almond of Nature Viva cc has been appointed to conduct a Paleontological Impact Assessment (PIA) desk-top study of the proposed project (Almond 2010).

Heritage consultant Ms Melanie Atwell has also been commissioned to undertake a Heritage Scoping Study of the proposed wind energy facility.

The infrastructure associated with the proposed wind energy farm includes the following:

- Up to 75 wind turbines each with a generation capacity of 2 MW;
- Underground cables between turbines;
- An overhead power line linking into the Nama substation, near Okiep;
- Access roads, including internal access roads to each wind turbine; and
- Construction camp site

## 2. TERMS OF REFERENCE

The terms of reference for the Archeological Scoping Study are to:

1. Determine whether there are likely to be any important archaeological resources that may potentially be impacted by the proposed project, including the construction of the wind turbines, proposed internal access roads and the proposed overhead transmission line linking to the Nama substation near Okiep;
2. Indicate any constraints that would need to be taken into account in considering the development proposal;
3. Identify sensitive archaeological areas, and
4. Recommend any further mitigation action.

## 3. THE STUDY SITE

Springbok is located about 550 kms north of Cape Town on the N7 (Figure 1). Nababeep lies to the west of the N7 and Okiep and Carolousberg lies to the east of the N7. Historically, both Okiep and Nababeep are important towns in the history of copper mining in Namaqualand (Smallberger 1995).

A Google aerial photograph of the proposed wind energy farms is illustrated in Figures 2 and 3. The proposed wind energy sites are situated at quite high altitudes (over 1000m ASL) and the terrain is very hilly, rocky and rugged (Figures 4-25). The proposed sites are accessible only via 4 x 4 vehicle or on foot. The site is located within an existing farm that is zoned Agriculture, but due to its high elevation, no agricultural activity, apart from some marginal grazing, occurs. There are several operating granite mines in the study area, namely Marley Mines near Concordia and Omni Mine in Okiep (Nama East).

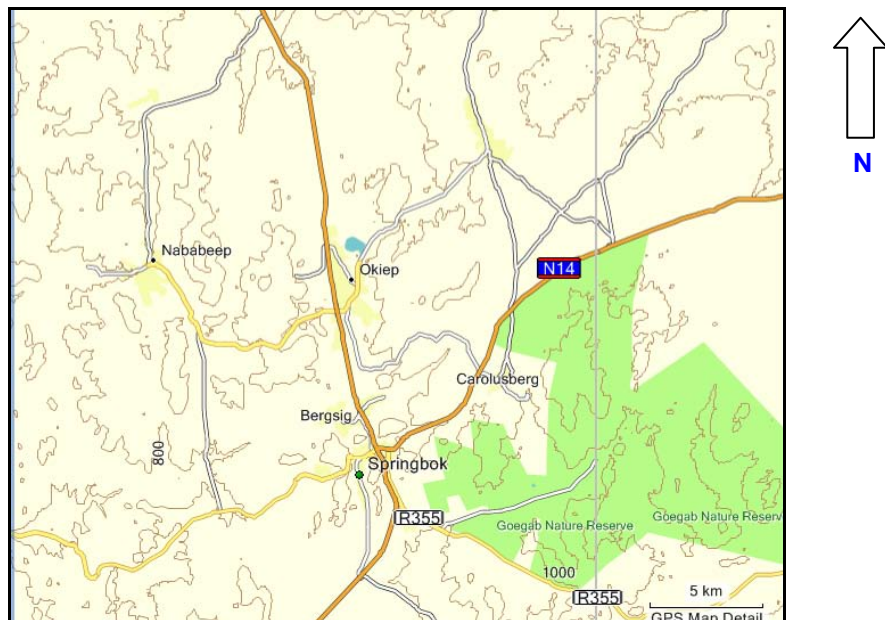


Figure 1. Locality Map

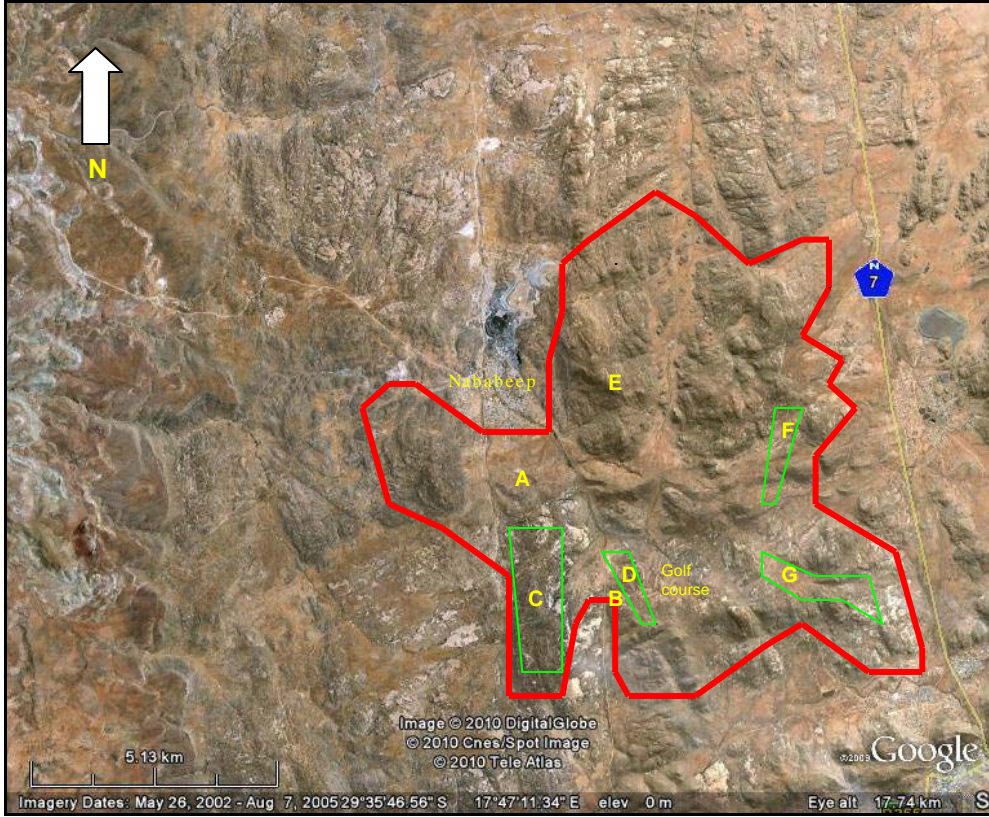


Figure 2. Google aerial photograph indicating the approximate boundary of Nama West.

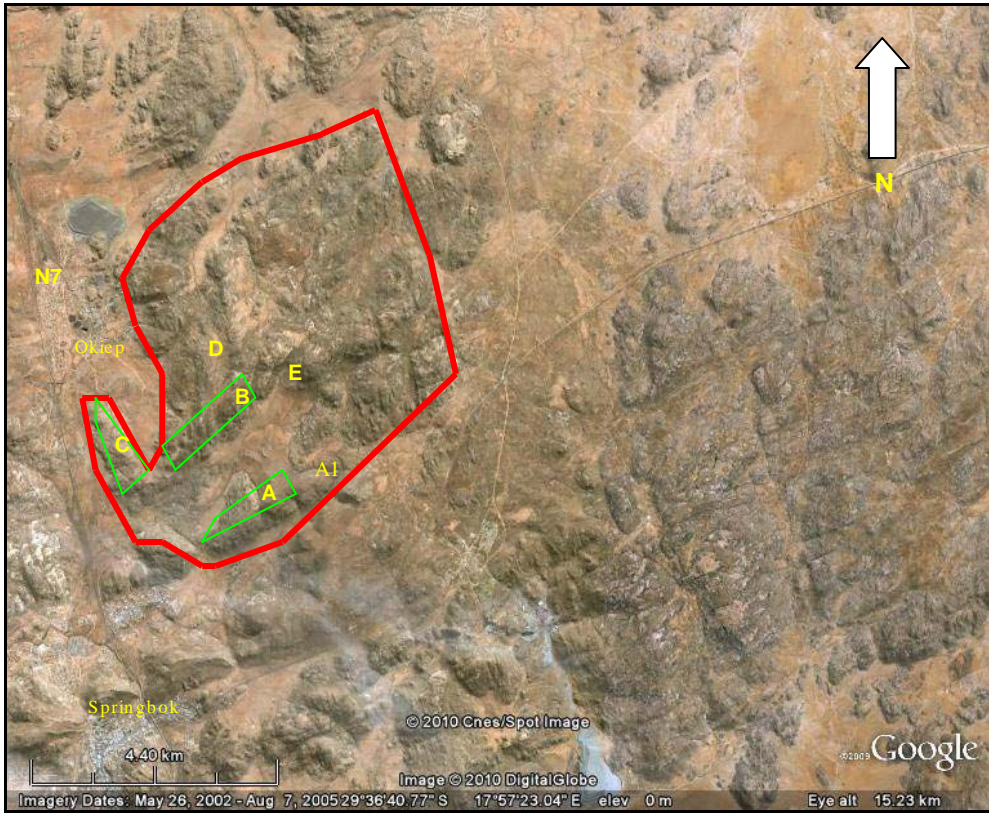


Figure 3. Google aerial photograph indicating the approximate boundary of Nama East.



Figure 4. Nama West (A) View facing north



Figure 7. Nama West (D) View facing south



Figure 5. Nama West (B) View facing east.

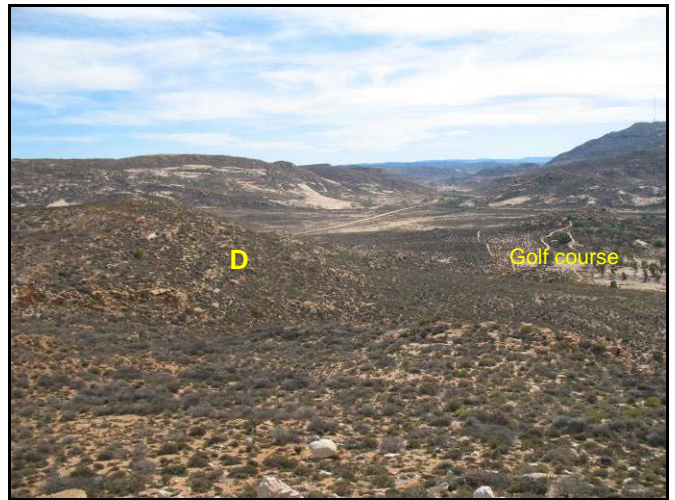


Figure 8. Nama West (D) View facing north west



Figure 6. Nama West (C) View facing west

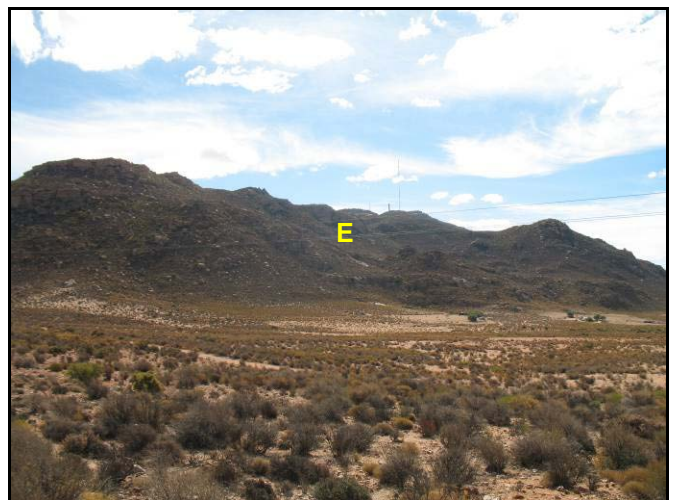


Figure 9. Nama West (E) View facing north west



Figure 10. Nama West (E) View facing west

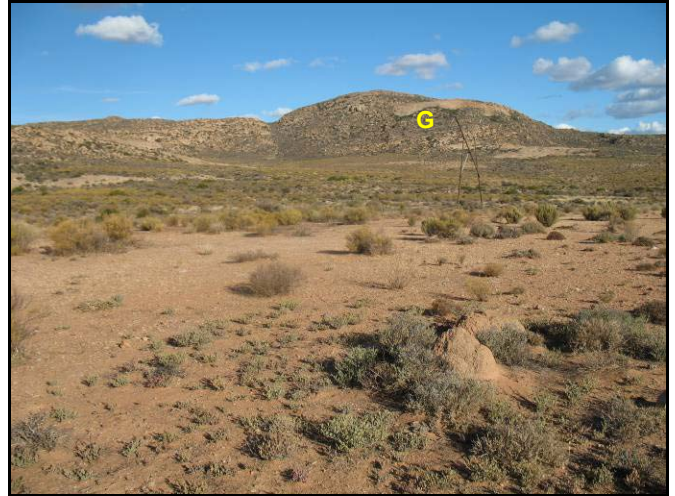


Figure 13. Nama West (G) View facing east, including access road



Figure 11. Nama West (F) View facing north

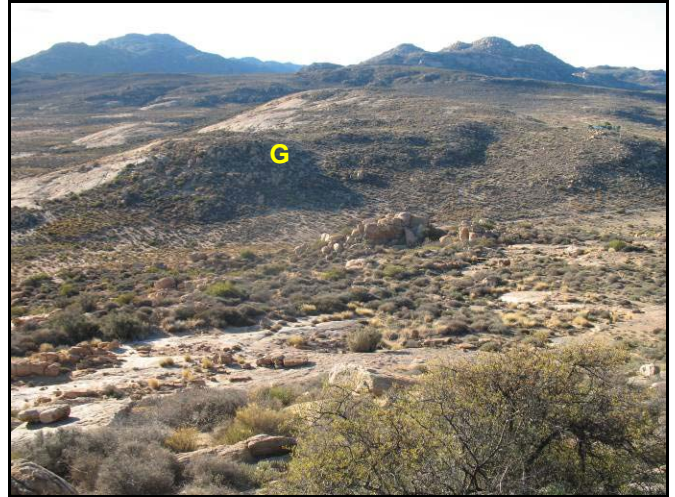


Figure 14. Nama West (G) View facing north



Figure 12. Nama West (F) View facing north



Figure 15. Nama West (G) Proposed access road view facing west





Figure 16. Nama East (A) and access road, view facing south west



Figure 19. Nama East (B) View facing north

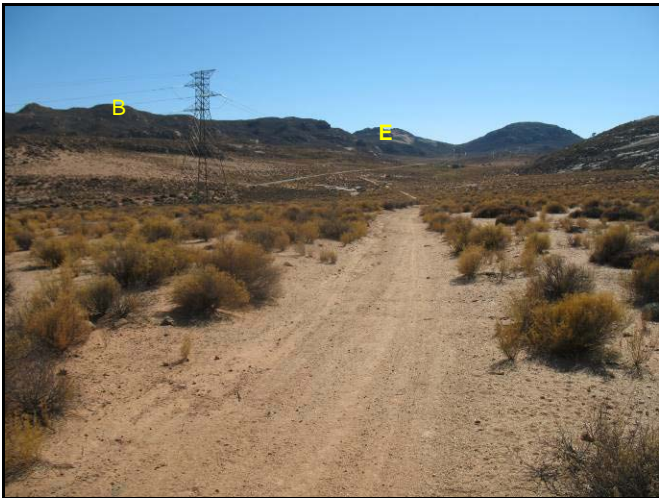


Figure 17. Nama East (A) access road facing north east



Figure 20. Nama East (B) View facing west from the mountain top

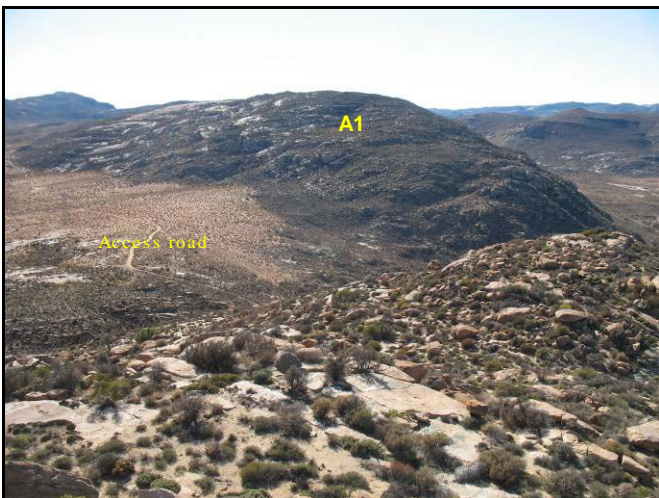


Figure 18. Nama East (A1) View facing north east



Figure 21. Nama East (E) View facing east



Figure 22. Nama East (B) View facing east from the mountain top



Figure 24. Nama East(C) View facing north



Figure 23. Nama East (D) View facing north east

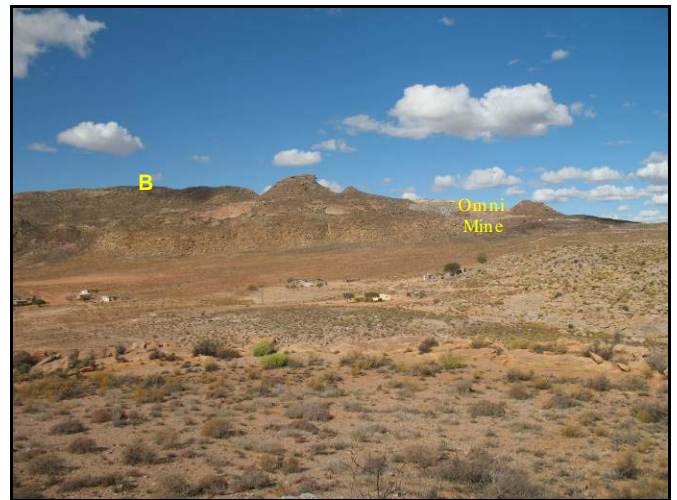


Figure 25. Nama East (B) View facing east

## 4. METHODOLOGY FOR THE STUDY

### 4.1 Method of survey

The Scoping Study is an attempt to predict the archaeological impacts of a proposed wind farm facility on a large, undeveloped portion of land. A two-day site visit was completed and a number of observations made. Predictions as to the archaeological sensitivity of the proposed wind farm site are thus based on a limited field study. The relatively large area of the study site covered on foot by the archaeologist during the Scoping Study has, however, meant that fairly accurate predictions regarding overall site distribution could be made. There is no body of information on which to base an archaeological prediction and not much is known of the archaeology, as no research has been conducted in the study area (Jayson Orton pers. comm. in consultation with Dr Lita Webley). The area is fairly remote and is used mainly by local farmers for the grazing of small stock. Several granite mines operate in the mountains east of the N7.

The Archaeological Scoping study was conducted over 2 days, on the 27<sup>th</sup> and 28<sup>th</sup> of April, 2010. Location sites were randomly chosen, but the wind measuring mast and surrounding area on Nama East was specifically targeted and searched in detail (refer to GPS track path). Polygons indicating the areas searched on foot are illustrated in Figures 2 and 3.

The actual location sites for the proposed wind turbines were not searched as the positions of the wind turbines may change as more accurate wind data is recorded. Targeted areas also included rocky kopjes and overhangs, which were searched for rock painting sites.

Existing access roads were also searched. It is important to note that most of the existing roads will just require upgrading. Existing tracks and roads are favoured since they constitute previously impacted areas.

Considering the relatively large area of the farm covered on foot by the archaeologist, it is maintained that the survey has captured good information on the archaeological heritage present.

The proposed overhead transmission line to Nama substation near Okiep, on the N7 was not searched for archaeological remains.

A large number of digital photographs of the site was taken, which have been saved to DVD. A GPS track path of the archaeological survey was created. This track path has also been saved to a DVD and submitted with a digital copy of the report. Archaeological occurrences and observations were plotted using a Garmin Oregon 300 GPS unit, set on map datum wgs 84.

## **4.2 Constraints and limitations**

Clearly, there are significant constraints associated with wind farm projects as they cover extensive tracts of land. The total study area for the proposed Springbok Wind Farm is large (over 9000 ha), but the footprint for the wind turbines and access roads is relatively small by comparison (refer to Figure in Appendix). The study area is also very rugged and mostly inaccessible, except on foot, or by 4 x 4 vehicles. Archaeological visibility over the study site is, however good.

## **5. FINDINGS**

### **5.1 Pre-colonial heritage**

Only three Stone Age flakes were found during the 2-day study. These include one possible quartz chunk and one quartzite Middle Stone Age flake on Nama West (Figure 26), and one utilized quartz flake on the rugged mountain top of Nama East, close to the wind measuring mast (Figure 27). One Later Stone Age silcrete adze and one silcrete flake was found (outside the study area) when taking long-view photographs of Nama East, which suggests that archaeological occurrences may occur on the flat lands in the proposed 10 km long powerline route to the Nama substation.

No rock art sites were found during a search of any of the rocky overhangs and shelters targeted during the study.

### 5.1.1 Predicted impacts

In the case of the proposed Nama West and Nama East wind farm, it is expected that impacts will be very limited and negligible. The very rocky and mostly inaccessible terrain suggests that any archaeological resources would be confined to the surface and it is also highly unlikely that any buried archaeological material will be uncovered during excavations, for the tower bases or for cable trenches, for example. It is also expected that the upgrading of existing access roads and the construction of internal access roads linking the wind towers will also have a very low, to negligible impact on pre-colonial archaeological heritage.

Despite the limited area covered during the survey, overall, it is maintained that the proposed development of the Nama wind energy farm will not have an impact of great significance on archaeological remains.



Figure 26. Nama West quartzite flake. Scale is in cm



Figure 27. Nama East utilised quartz flake

### 5.2 Other finds

Three graves (one unidentified) were located alongside the gravel road to Nababeep, on Jackalsrivier Farm (Figure 28). The graves are visible beneath a large Blue Gum tree and fenced off and will not be impacted by the proposed project



Figure 28. Graves's apposite Jackalsrivier farm

The collapsed remains of a small veewagterhuis (shepherds hut) were documented on Nama West. This is a modern structure of collapsed dolerite blocks, as fragments of glass from a beer bottle, and the neck of a half jack brandy bottle was also found lying about (Figure 29).



Figure 29. Remains of veewagterhuis.

Scoping indications are:

- Significant archaeological remains will not be impacted by the proposed project.
- An Archaeological Impact Assessment of the proposed location sites for the wind turbines and access road is not required.

## **6. IMPACT STATEMENT**

The Archaeological Scoping Assessment of the proposed Nama West and Nama East wind energy facility near Springbok has identified no significant impacts to pre-colonial archaeological material that will need to be mitigated prior to proposed development activities.

## **7. RECOMMENDATIONS AND MITIGATION ACTION**

The following recommendations are, however made:

1. An Archaeological Impact Assessment of the proposed 10 km transmission line must be done.
2. The location of the proposed construction site camp must be assessed by the archaeologist.
3. Proposed borrow pits for roads must be inspected for archaeological remains.

## **8. CONCLUSION**

With regard to the proposed Nama West and Nama East Wind Energy Facility near Springbok in the Northern Cape, indications are that in terms of archaeological heritage, the proposed activity is viable, and impacts are expected to be negligible.

In archaeological terms, no fatal flaws have been identified

## **9. REFERENCES**

Almond, J. 2010. Palaeontological Impact Assessment – Desktop study proposed wind farm near Springbok Namaqualand, Northern Cape Province.

Smallberger, J.M. 1995. A history of copper mining in Namaqualand. Scholtz Trust.

## Appendix

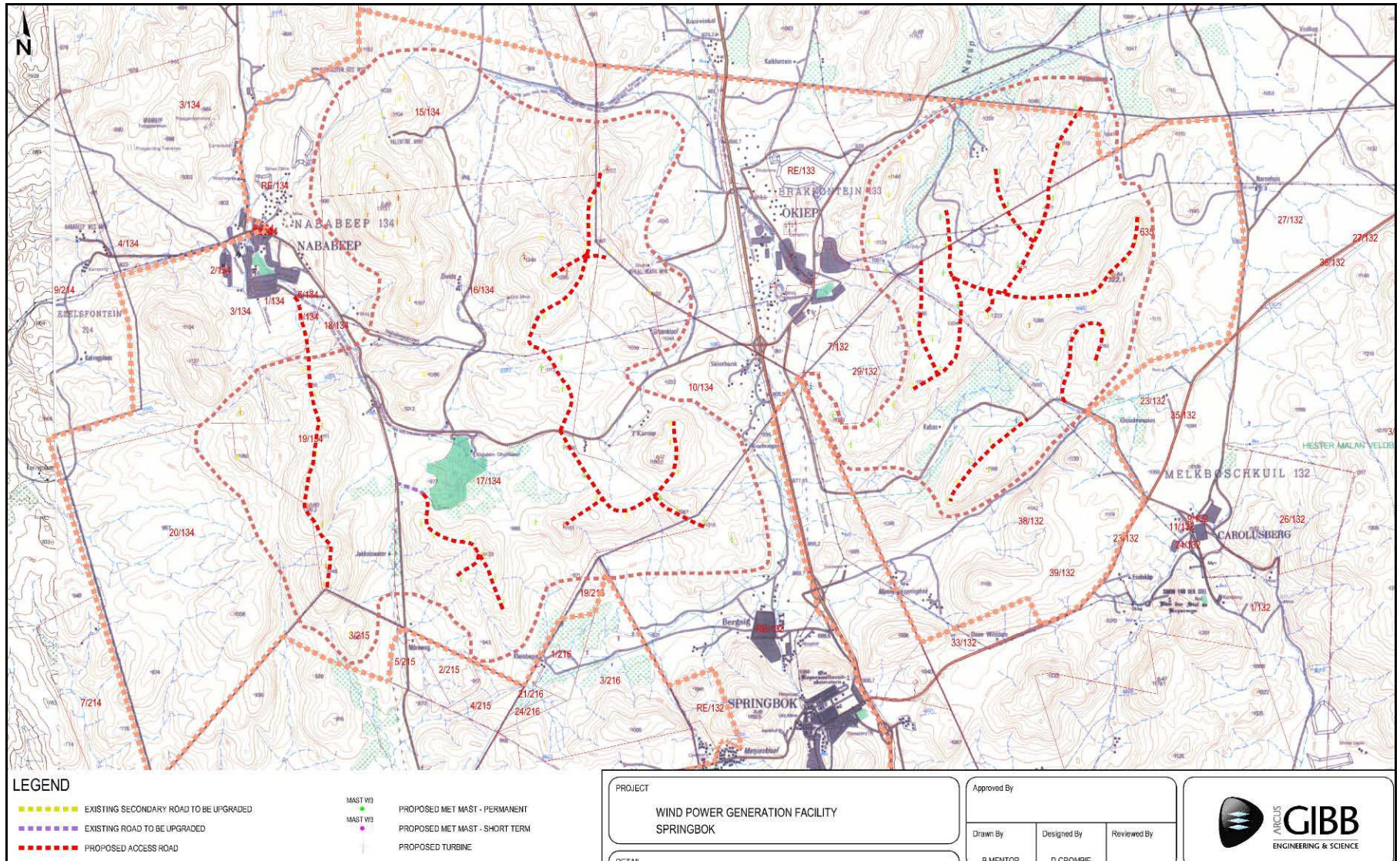


Figure. Proposed Nama West and Nama East wind energy facility